

**CLAIMS**

1. Method of ventilating a device for electron beam irradiation of at least one side of a web (W), the method comprising the steps of:
- 5 providing a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),
- providing a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112), and an electron exit surface (21) through which electrons are adapted to be emitted into the second chamber (111),
- 10 passing the web (W) through the second chamber (111), and
- creating a flow of a gaseous fluid through both the first and second chambers (107,111) in a direction opposite the direction of travel of the web (W) by supplying said fluid into the web outlet opening (121) of the first chamber (107)
- 15 and providing at least one outlet (113).
2. Method of ventilating a device for electron beam irradiation of at least one side of a web (W), the method comprising the steps of:
- 20 providing a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),
- providing a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112), and an electron exit surface (21) through which electrons are adapted to be emitted into the second chamber (111),
- 25 passing the web (W) through the second chamber (111),
- providing fluid connection between the web outlet opening (112) of the second chamber (111) and the web outlet opening (121) of the first chamber (107),
- 30 preventing fluid connection between the first chamber (107) and the web outlet opening (121) of the first chamber (107), and
- creating a flow of a gaseous fluid through both the first and second chambers (107,111) in a direction opposite the direction of travel of the web (W) by supplying said fluid into the first chamber (107) and into the web outlet opening (121) of the first chamber (107) and providing at least one outlet (113).
- 35 3. The method according to claim 1 or 2, comprising the step of providing fluid connection between the web inlet opening (115) of the first chamber (107)

and both the first chamber (107) and the web inlet opening (114) of the second chamber (111).

4. The method according to any of claims 1 and 3, comprising the step of  
5 providing fluid connection between the web outlet opening (121) of the first chamber (107) and both the first chamber (107) and the web outlet opening (112) of the second chamber (111).

5. The method according to any of claims 1-4, comprising the step of locating  
10 the web outlet opening (112) of the second chamber (111) at a distance from and preferably substantially in line with the web outlet opening (121) of the first chamber (107).

6. The method according to any of claims 1-5, comprising the step of  
15 providing the outlet (113) in vicinity of the web inlet opening (114) of the second chamber (111).

7. The method according to any of claims 1-5, comprising the step of  
20 providing the outlet (113) inside the second chamber (111) in the vicinity of the web inlet opening (114).

8. The method according to claim 1-5, comprising the step of providing the  
25 outlet (113) in the vicinity of the web inlet opening (115) of the first chamber (107).

9. The method according to claim 1 or 2, comprising the step of controlling  
the flow of gaseous fluid so that a first overpressure is created inside the first chamber (107), and a second overpressure is created inside the second chamber (111).  
30

10. The method according to claim 9, whereby the overpressures are chosen  
so that the first overpressure and the second overpressure are the same.

11. The method according to claim 9, whereby the overpressures are chosen  
35 so that the first overpressure and the second overpressure are different.

12. Device for electron beam irradiation of at least one side of a web (W), the device comprising:

a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),

5 a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112), and being adapted to receive an electron beam emitter (2) provided with an electron exit window (21) through which electrons are adapted to be emitted into the second chamber (111),

the web (W) being adapted to pass the second chamber (111), and

10 the web outlet opening (121) of the first chamber (107) being adapted to be in communication with a gaseous fluid supply and both chambers (107,111) being in communication with an outlet (113), the supply and the outlet (113) are adapted to create a flow of the gaseous fluid through both the first and second chambers (107,111) in a direction opposite the direction of travel of the web (W).

15 13. Device for electron beam irradiation of at least one side of a web (W), the device comprising:

a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),

20 a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112) and being adapted to receive an electron beam emitter (2) provided with an electron exit window (21) through which electrons are adapted to be emitted into the second chamber (111),

the web (W) being adapted to pass the second chamber (111),

25 a fluid connection is adapted to be provided between the web outlet opening (112) of the second chamber (111) and the web outlet opening (121) of the first chamber (107),

a fluid connection is adapted to be prevented between the first chamber (107) and the web outlet opening (121) of the first chamber (107),

30 the web outlet opening (121) of the first chamber (107) being adapted to be in communication with a first gaseous fluid supply,

the first chamber (107) being adapted to be in communication with a second gaseous fluid supply,

both chambers (107,111) being in communication with an outlet (113), and

35 the first and second supplies and the outlet (113) are adapted to create a flow of the gaseous fluid through both the first and second chambers (107,111) in a direction opposite the direction of travel of the web (W).

14. Device for electron beam irradiation of at least one side of a web (W), the device comprising:

a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),

5 a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112), and an electron beam emitter (2) provided with an electron exit window (21) through which electrons are to be emitted into the second chamber (111),

10 the web (W) being adapted to pass the second chamber (111), and the web outlet opening (121) of the first chamber (107) is in communication with a gaseous fluid supply and both chambers (107,111) are in communication with an outlet (113), the supply and the outlet (113) are adapted to create a flow of the gaseous fluid through both the first and second chambers (107,111) in a  
15 direction opposite the direction of travel of the web (W).

15. Device for electron beam irradiation of at least one side of a web (W), the device comprising:

20 a first chamber (107) comprising a web inlet opening (115) and a web outlet opening (121),

a second chamber (111) extending inside the first chamber (107), the second chamber (111) comprising a web inlet opening (114), a web outlet opening (112), and an electron beam emitter (2) provided with an electron exit window (21) through which electrons are emitted into the second chamber (111),

25 the web (W) being adapted to pass the second chamber (111), a fluid connection is provided between the web outlet opening (112) of the second chamber (111) and the web outlet opening (121) of the first chamber (107),

30 the first chamber (107) is prevented from being in fluid connection with the web outlet opening (121) of the first chamber (107),

the web outlet opening (121) of the first chamber (107) being in communication with a first gaseous fluid supply,

the first chamber (107) is in communication with a second gaseous fluid supply,

35 both chambers (107,111) being in communication with an outlet (113), and the first and second supplies and the outlet (113) are adapted to create a flow of the gaseous fluid through both the first and second chambers (107,111) in a direction opposite the direction of travel of the web (W).